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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,413	11/05/2001	Shuji Yoneda	15162/04160	6864

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EXAMINER

KOVALICK, VINCENT E

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/993,413

Applicant(s)

YONEDA ET AL.

Examiner

Vincent E Kovalick

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-13 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is in response to Applicant's Patent Application, Serial No. 09/993,413, with a File Date of November 5, 2001.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Hebiguchi et al. (USP 6,184,853).

Relative to claim 1, Hebiguchi et al. **teaches** a method of driving a display device (col. 1, lines 15-67; col. 2, lines 1-67 and col. 3, lines 1-15); Hebiguchi et al. further **teaches** a liquid crystal display (LCD) apparatus comprising: a liquid crystal display element comprised of a liquid crystal layer and having a plurality of pixels arranged in a matrix form (col. 4, lines 30-63); and a driver for dividing one frame into at least four fields and interlace-scanning the at least four fields (col. 12, lines 1-12), wherein said driver drives the respective fields composing one frame so that a scanning order of the fields is discontinued at least once (col. 12, lines 17-50; col. 13, lines 6-10 and Fig. 15). It being understood wherein the scanning order of the fields is discontinued for each field as scanning switches from field to field within each frame.

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Regarding claim 3, Hebiguchi et al. further **teaches** said LCD wherein said driver drives the respective fields so that a scanning order thereof is always discontinued (col. 12, lines 60-65 and Fig. 15). Fig. 15 shows the sequence of switching from fields F1 to F2 to F3 to F4 and back to F1 to continue the sequence until the end of each field is reached, the switching fields takes place after scanning only one line for each field at a time, consequently the scanning order is always discontinued after writing one line per field.

As to claim 6, Hebiguchi et al. **teaches** said LCD wherein the display element is constituted so that a plurality of liquid crystal layers are laminated, and the liquid crystal layers are scanned by said driver (col. 4, lines 30-63 and Fig. 1).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hebiguchi et al. as applied to claim 1 in item 3 hereinabove, and further in view of Ozawa et al. (USP 6,501,454).

Relative to claim 2, Hebiguchi et al. **does not teach** a LCD wherein said drive drives scanning lines by means of a driving waveform having a reset period for resetting a state of liquid crystals, a selection period for selecting a final display state of the liquid crystals, and a maintaining period for establishing the state selected at the selection period.

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Hebiguchi et al. teaches driving a matrix display device that displays one color by combining a plurality of basic colors.

Ozawa et al. **teaches** a LCD driving method for driving an apparatus using the LCD (col. 2, lines 32-65; col. 3, lines 1-65 and col. 4, lines 1-57); Ozawa et al. further **teaches** a LCD wherein said drive drives scanning lines by means of a driving waveform having a reset period for resetting a state of liquid crystals, a selection period (T3) for selecting a final display state of the liquid crystals, and a maintaining period (T4) for establishing the state selected at the selection period (col. 8, lines 37-67 and Fig. 4).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Hebiguchi et al. the feature as taught by Ozawa et al. in order to provide a driving method in which various types of display patterns can be displayed with a predetermined driving voltage margin being maintained and power consumption being prevented from increasing, (Ozawa et al. col. 2, lines 32-38). Further, both systems are directed towards driving LCD devices.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hebiguchi et al. as applied to claim 1 in item 3 hereinabove, and further in view of Shiba et al. (USP 5,526,014).

Regarding claim 4, Hebiguchi et al. **does not specifically teach** said LCD apparatus wherein said driver successively scans odd-numbered lines of the respective fields and successively scans even-numbered lines; though Hebiguchi et al. does teach the use of interlace-scanning (col. 13, lines 6-10).

Hebiguchi et al. teaches driving a matrix display device that displays one color by combining a plurality of basic colors.

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Shiba et al. **teaches** a semiconductor device for driving a LCD panel (col. 4, lines 36-67 and col. 5, lines 1-3); Shiba et al. further **teaches** said LCD apparatus wherein said driver successively scans odd-numbered lines of the respective fields and successively scans even-numbered lines (col. 2, lines 36-45).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to make available to the device as taught by Hebiguchi et al. the feature as taught by Shiba et al. in order to provide the benefit of doubling the vertical resolution of the image in turn yielding a smoother displayed image. Further, both systems are directed towards driving LCD devices.

7. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hebiguchi et al. as applied to claim 1 in item 3 hereinabove, and further in view of Nagai et al. (USP 5,091,557).

Relative to claim 7, Hebiguchi et al. **does not teach** said LCD apparatus wherein the liquid crystals included in said LCD element have memory property.

Hebiguchi et al. teaches driving a matrix display device that displays one color by combining a plurality of basic colors.

Nagai et al. **teaches** liquid crystal properties (col. 2, lines 50-67 and col. 3, lines 1-17); Nagai et al. further **teaches** said LCD apparatus wherein the liquid crystals included in said LCD element have memory property (col. 9, lines 23-27).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to make available to the device as taught by Hebiguchi et al. the feature as taught by Nagai et al. in order to provide a LCD element with desirable memory properties thereby reducing the power consumption necessary to hold the said LCD element at a desired state. Further, both systems are

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directed at driving LCD devices.

Regarding claim 8, Nagai et al. further **teaches** said LCD apparatus wherein said liquid crystals show a cholesteric phase at room temperature (col. 15, lines 51-54).

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hebiguchi et al. as applied to claim 1 in item 3 hereinabove, and further in view of Sandoe et al. (USP 6,243,061).

Relative to claim 9, Hebiguchi et al. **does not teach** said LCD apparatus wherein the scanning of next field is started based on reset period end timing of one scanning line of the previous field. Hebiguchi et al. teaches driving a matrix display device that displays one color by combining a plurality of basic colors.

Sandoe et al. **teaches** an active matrix display device and methods of driving such (col. 3, lines 19-67 and col. 4, lines 1-56); Sandoe et al. further **teaches** said LCD apparatus wherein the scanning of next field is started based on reset period end timing of one scanning line of the previous field (col. 8, lines 5-11).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to make available to the device as taught by Hebiguchi et al. the feature as taught by Sandoe et al. in order to generate the said reset signal indicating the start of scanning the next field to be scanned and set the proper voltages to begin the next selection period.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hebiguchi et al. taken with Ozawa et al. as applied to claim 2 in item 5 hereinabove, and further in view of Sandoe et al.

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Regarding claim 10, Hebiguchi et al. taken with Ozawa et al. **does not teach** said LCD apparatus wherein the scanning of the next field is started based on a reset period end timing of one scanning line of the previous field.

Hebiguchi et al. taken with Ozawa et al. teaches Hebiguchi et al. teaches driving a matrix display device that displays one color by combining a plurality of basic colors; wherein the scanning lines are driven by a waveform comprises a reset period, a selection period and a maintaining period.

Sandoe et al. **teaches** said LCD apparatus wherein the scanning of next field is started based on reset period end timing of one scanning line of the previous field (col. 8, lines 5-11).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to make available to the device as taught by Hebiguchi et al. taken with Ozawa et al. the feature as taught by Sandoe et al. in order to generate the said reset signal indicating the start of scanning the next field to be scanned and set the proper voltages to begin the next selection period.

Regarding claims 11, 12 and 13, the remarks presented above with regard to claims 6, 7 and 8, apply equally to claims 11, 12 and 13 respectively.

Allowable Subject Matter

10. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 5, the major difference between the teachings of the prior art of record

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(USP 6,184,853, Hebiguchi et al. and USP 6,501,454, Ozawea et al.) is that said prior art of record **does not teach** the LCD apparatus wherein the driver scans the scanning lines according to the equation " $S = a + nk$ ", where "S" is the scanning lines to be driven; "a" is a variable number with an initial value of "one"; "n" is a variable number with an initial value of "zero", and "k" is in integer of not less than 2.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


U. S. Patent No.	6,414,666	Yamakawa et al.
U. S. Patent No.	5,754,153	Mizutome et al.
U. S. Patent No.	5,734,367	Tsuboyama et al.
U. S. Patent No.	5,726,679	Kanno et al.

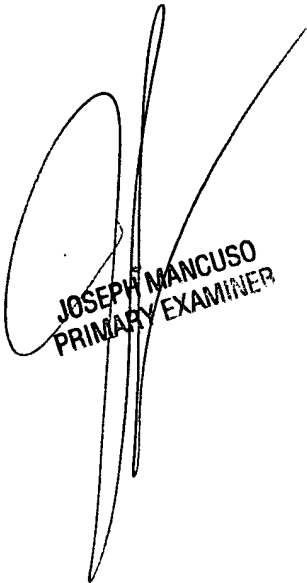
Responses

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent E Kovalick whose telephone number is 703 306-3020. The examiner can normally be reached on Monday-Thursday 7:30- 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703 305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 306-0377.


Vincent E. Kovalick
September 13, 2003


JOSEPH MANCUSO
PRIMARY EXAMINER